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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/938,065	08/23/2001	Larry R. Bersuch	TA-00524	1674

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EXAMINER

KILKENNY, TODD J

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 10/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/938,065

Applicant(s)

BERSUCH ET AL.

Examiner

Todd J. Kilkenney

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1, 4 and 7 – 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wanthal et al ("Interlaminar Reinforced Composites Development for Improved Damage Tolerance") in view of Kohler (US 5,476,704).

In the cited published paper supplied in applicant's IDS, Wanthal et al summarize several efforts within the Composite Affordability Initiative (CAI) – Pervasive program to evaluate and implement application of 3D textile preforms as means to improve tolerance of composite structures. Wanthal et al further suggest that a number of textile elements were fabricated and tested in CAI, including a pi shaped textile preform. In one tested embodiment, the 3-D textile was resin infused and staged, the flange of the pi shaped staged preform was located on prepreg tape lay-up (recognized as a skin reading on applicant's claimed first component), a tool coated with release agent was inserted in the clevis of the preform during curing to maintain geometric shape. This assembly was bagged and autoclave cured. After curing, a precured laminate (applicant's second component) was paste bonded in the pi shaped textile preform using adhesive (page 13, lines 7 – 14).

Kohler teaches a "pi" shaped synthetic resin composite profile, wherein referring to Figure 4, a web panel is inserted into the clevis joint of the composite profile and bonded therein by an adhesive (4).

As evidenced by Kohler, one of ordinary skill in the art would readily recognize in bonding a web panel (i.e. applicant's second component) within the clevis joint of a 3-D preform, the web panel would need to be of a narrower width than the separation distance between the legs of the pi shaped preform so as to permit adequate clearance for adhesive within the clevis joint. Furthermore, in view of Wanthal et al suggesting inserting a tool coated with release agent within the clevis joint during curing to maintain the geometric shape of the preform, one of ordinary skill would readily appreciate employing a tool that has a width that closely matches the separation distance between the legs of the pi shaped preform so that the preform can "maintain" its shape as taught. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the second component (i.e. the precured laminate) of Wanthal et al had a width smaller than the tool so as to ensure adequate clearance for the adhesive provided in the clevis joint as is clearly diagrammed by Kohler.

3. Claims 2, 6, 12, 14, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wanthal et al ("Interlaminar Reinforced Composites Development for Improved Damage Tolerance") in view of Kohler (US 5,476,704) as applied to claim 1 above, and further in view of Owens et al ("Tension Pull-off and Shear Test Methods to Characterize 3-D Textile Reinforced Bonded Composite Tee-Joints").

As to independent claim 12, Wanthal et al in view of Kohler, as provided against independent claim 1, teach and/or render obvious all the claim limitations of independent claim 12 with the exception of positively suggesting to use a film adhesive to adhere at least one surface of the preform to at least one surface of the first component. However, as evidenced by Owens et al, it is known that cobonding processes for adhering a 3-D woven pi clip to a skin panel include a film adhesive positioned between at least one surface of the preform and at least one surface of the panel. It therefore would have been obvious to one of ordinary skill in the art at the time of the invention to include a film adhesive in adhering the 3-D textile to the precured prepreg lay-up in the cobonding process as suggested by Wanthal et al as cobonding processes are known to include film adhesive positioned between the preform and web panel components as evidenced by Owens et al.

As to claims 6 and 16, referring to Figure 1 of Owens et al, it is further known to include overwrap plies to the preform and adhesive film. It would have been obvious to one of ordinary skill in the art at the time of the invention to include overwrap plies to the cobonding process of Wanthal et al as is known as suggested by Owens et al to improve the shear strength of the cobonded assembly.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wanthal et al ("Interlaminar Reinforced Composites Development for Improved Damage Tolerance") in view of Kohler (US 5,476,704) as applied to claim 1 above, and further in view of Seeman (US 5,052,906).

Wanthal et al while teaching to include a coating of release agent on the tool inserted in the clevis joint fail to suggest locating a peel ply within the clevis between the tool and preform. However, the use of a peel ply in vacuum curing procedures for resin infused textiles is known in the art as evidenced for example by Seemann. It therefore would have been obvious to one of ordinary skill in the art at the time of the invention to include a peel ply in the clevis joint between the tool and preform during the curing operation of Wanthal et al so as to facilitate removal of the tool of Wanthal et al, leaving the side faces of the clevis joint conditioned for the acceptance the adhesive as suggested by Seemann (Col. 6, lines 25 – 43).

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wanthal et al ("Interlaminar Reinforced Composites Development for Improved Damage Tolerance") in view of Kohler (US 5,476,704) as applied to claim 1 above, and further in view of Sloman (WO 98/50214; newly cited).

Wanthal et al appear not to positively suggest placing over-presses against the outer surfaces of the preform while curing the pi shaped preform. However, as evidenced by Sloman (Fig. 2), it is known to employ pressure intensifiers (26) in curing operations of preforms, wherein the pressure intensifier as diagrammed, appears to be generally triangular in cross section. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ pressure intensifiers ("over presses") such as those taught by Sloman, in the curing process of Wanthal et al as

Art Unit: 1733

means to ensure that appropriate pressure is applied at a corner region of the lay-up (Sloman, page 6, lines 18 – 21).

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wanthal et al ("Interlaminar Reinforced Composites Development for Improved Damage Tolerance") in view of Kohler (US 5,476,704) and Owens et al ("Tension Pull-off and Shear Test Methods to Characterize 3-D Textile Reinforced Bonded Composite Tee-Joints") as applied to claim 12 above, and further in view of Seeman (US 5,052,906).

Wanthal et al while teaching to include a coating of release agent on the tool inserted in the clevis joint fail to suggest locating a peel ply within the clevis between the tool and preform. However, the use of a peel ply in vacuum curing procedures for resin infused textiles is known in the art as evidenced for example by Seemann. It therefore would have been obvious to one of ordinary skill in the art at the time of the invention to include a peel ply in the clevis joint between the tool and preform during the curing operation of Wanthal et al so as to facilitate removal of the tool of Wanthal et al, leaving the side faces of the clevis joint conditioned for the acceptance the adhesive as suggested by Seemann (Col. 6, lines 25 – 43).

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wanthal et al ("Interlaminar Reinforced Composites Development for Improved Damage Tolerance") in view of Kohler (US 5,476,704) and Owens et al ("Tension Pull-off and Shear Test Methods to Characterize 3-D Textile Reinforced Bonded Composite Tee-

Art Unit: 1733

Joints”) as applied to claim 12 above, and further in view of Sloman (WO 98/50214; newly cited).

Wanthal et al appear not to positively suggest placing over-presses against the outer surfaces of the preform while curing the pi shaped preform. However, as evidenced by Sloman (Fig. 2), it is known to employ pressure intensifiers (26) in curing operations of preforms, wherein the pressure intensifier as diagrammed, appears to be generally triangular in cross section. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ pressure intensifiers (“over presses”) such as those taught by Sloman, in the curing process of Wanthal et al as means to ensure that appropriate pressure is applied at a corner region of the lay-up (Sloman, page 6, lines 18 – 21).

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wanthal et al (“Interlaminar Reinforced Composites Development for Improved Damage Tolerance”) in view of Kohler (US 5,476,704), Owens et al (“Tension Pull-off and Shear Test Methods to Characterize 3-D Textile Reinforced Bonded Composite Tee-Joints”), Seeman (US 5,052,906) and Sloman (WO 98/50214; newly cited).

As addressed in the rejections above, Wanthal et al summarize several efforts within the Composite Affordability Initiative (CAI) – Pervasive program to evaluate and implement application of 3D textile preforms as means to improve tolerance of composite structures. Wanthal et al further suggest that a number of textile elements were fabricated and tested in CAI, including a pi shaped textile preform. In one tested

embodiment, the 3-D textile was resin infused and staged, the flange of the pi shaped staged preform was located on prepreg tape lay-up (recognized as a skin reading on applicant's claimed first component), a tool coated with release agent was inserted in the clevis of the preform during curing to maintain geometric shape. This assembly was bagged and autoclave cured. After curing, a precured laminate (applicant's second component) was paste bonded in the pi clevis using adhesive (page 13, lines 7 – 14).

Kohler teaches a "pi" shaped synthetic resin composite profile, wherein referring to Figure 4, a web panel is inserted into the clevis joint of the composite profile and bonded therein by an adhesive (4).

As evidenced by Kohler, one of ordinary skill in the art would readily recognize in bonding a web panel (i.e. applicant's second component) within the clevis joint of a 3-D preform, that the web panel would need to be of a narrower width than the separation distance between the legs of the pi shaped preform so as to permit adequate clearance for adhesive within the clevis joint. Furthermore, in view of Wanthal et al suggesting inserting a tool coated with release agent within the clevis joint during curing to maintain the geometric shape of the preform, one of ordinary skill would readily appreciate employing a tool that has a width that closely matches the separation distance between the legs of the pi shaped preform so as to be able to "maintain" its shape as taught. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the second component (i.e. the precured laminate) of Wanthal et al had a width smaller than the tool so as to ensure adequate clearance for the adhesive provided in the clevis joint as is clearly diagrammed by Kohler.

Art Unit: 1733

As to applicant's claim limitation of using a film adhesive to adhere at least one surface of the preform to at least one surface of the first component, it is noted that Wanthal et al although suggesting both cocuring and cobonding process fail to positively suggest the use of an adhesive film to help adhere the preform to the web panel. However, as evidenced by Owens et al, it is known that cobonding processes for adhering a 3-D woven pi clip to a skin panel include a film adhesive positioned between at least one surface of the preform and at least one surface of the panel. It therefore would have been obvious to one of ordinary skill in the art at the time of the invention to include a film adhesive in adhering the 3-D textile to the precured prepreg lay-up in the cobonding process as suggested by Wanthal et al as cobonding processes include film are known to include film adhesive positioned between the preform and web panel components as evidenced by Owens et al.

As to applicant's claim limitation of inserting a peel ply between the legs and inserting a tool within the peel ply, Wanthal et al while teaching to include a coating of release agent on the tool inserted in the clevis joint fail to suggest locating a peel ply within the clevis between the tool and preform. However, the use of a peel ply in vacuum curing procedures for resin infused textiles is known in the art as evidenced for example by Seemann. It therefore, would have been obvious to one of ordinary skill in the art at the time of the invention to include a peel ply in the clevis joint between the tool and preform during the curing operation of Wanthal et al so as to facilitate the removal the tool of Wanthal et al, leaving the side faces of the clevis joint conditioned for the acceptance the adhesive as is suggested by Seemann (Col. 6, lines 25 – 43).

As to applicant's claim limitation placing over-presses against outer surfaces of the preform while curing, Wanthal et al appear not to positively suggest placing over-presses against the outer surfaces of the preform while curing the pi shaped preform. However, as evidenced by Sloman, it is known to employ pressure intensifiers to the corner areas of prepreg lay-ups (Fig. 2, element 26). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ a pressure intensifier such as that taught by Sloman in the curing process of Wanthal et al as means to ensure that appropriate pressure is applied at a corner region of the lay-up (Sloman, page 6, lines 18 – 21).

Response to Arguments

9. Applicant's arguments filed 7-14-03 have been fully considered but they are not persuasive.

Applicant argues that the technical paper to Wanthal et al (the primary reference employed in all rejections) is not available as prior art because it has not been made available to the public as it was presented at a closed session of a conference attended by a select group of people associated with defense contractors, no copies of the paper were given out at the conference and the paper is not accessible on any databases. This argument is unpersuasive as applicant's assertions are insufficient evidence to remove Wanthal et al as prior art.

First, the technical paper is considered to be available as prior art under 35 USC § 102 (a) as known or used by others for example, if there has been no deliberate

attempt to keep it secret see MPEP 2132 or in public use under 35 USC § 102 (b) see MPEP 2133.03. It is the position of the examiner that those attending the conference would have been considered artisans in the art and thus disclosure of the reference material shows prior public knowledge in the art. Furthermore, applicant has provided no evidence that there was a duty of confidentiality and non-disclosure among the attendees of the conference.

Second, the technical paper to Wanthal reference could also be considered as a "printed publication" under 35 USC § 102 if the reference is available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, can locate it or the public concerned with the art would know of the invention (for example if it is cataloged and held in a library including those of any of the three companies that participated in the production of the paper) see MPEP 2128 and 2128.01. Is applicant's assertion that the document isn't accessible on any database, include the paper's availability with respect to all three companies represented by the authors?

Third, if the paper is not available under prior art, then it is unclear why Applicant sent the paper in the Information Disclosure statement and listed the reference as a copyrighted paper and not as a closed session conference. It is further noted that Applicant has not provided the date of the conference.

Applicant's additional arguments against the secondary references are also unpersuasive. In maintaining Wanthal et al as the primary reference, the teachings of the secondary references are not provided to be combined together to teach applicant's

claimed invention, but are employed as evidence that applicant's claimed invention is obvious over Wanthal et al.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

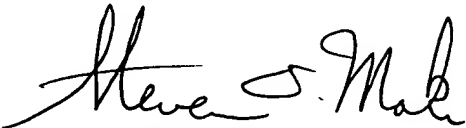
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Todd J. Kilkenny** whose telephone number is **(703) 305-6386**. The examiner can normally be reached on Mon - Fri (9 - 5).

Art Unit: 1733

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

TJK


STEVEN D. MAKI
PRIMARY EXAMINER
~~GROUP 1300~~
AC 1733 10-6-03